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EXAMINER

WOODS, ERIC V

ART UNIT	PAPER NUMBER
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2672

DATE MAILED: 02/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/691,603

Applicant(s)

BAI, XUQIANG

Examiner

Eric V Woods

Art Unit

2672

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 20050203.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

2. The abstract of the disclosure is objected to because the first two lines utilize the terms "a character image extraction extracting ...". The item cited is an apparatus, and clearly applicant meant it to read, "a character image extraction **unit** ...", et cetera. Correction is required. See MPEP § 608.01(b).

3. Applicant is reminded of the following, which relates to the 'Summary of the Invention' section and the 'Detailed Description' section:

Content of Specification

- (f) Brief Summary of the Invention: See MPEP § 608.01(d). A brief summary or general statement of the invention as set forth in 37 CFR 1.73. The summary is separate and distinct from the abstract and is directed toward the invention rather than the disclosure as a whole. The summary may point out the advantages of the invention or how it solves problems previously existent in the prior art (and preferably indicated in the Background of the Invention). In chemical cases it should point out in general terms the utility of the invention. If possible, the nature and gist of the invention or the inventive concept should be set forth. Objects of the invention should be treated briefly and only to the extent that they contribute to an understanding of the invention.
- (h) Detailed Description of the Invention: See MPEP § 608.01(g). A description of the preferred embodiment(s) of the invention as required in 37 CFR 1.71. The description should be as short and specific as is necessary to describe the invention adequately and accurately. Where elements or groups of elements, compounds, and processes, which are conventional and generally widely known in the field of the invention described and their exact nature or type is not necessary for an understanding and use of the invention by a person skilled in the art, they

should not be described in detail. However, where particularly complicated subject matter is involved or where the elements, compounds, or processes may not be commonly or widely known in the field, the specification should refer to another patent or readily available publication, which adequately describes the subject matter.

4. The specification is objected to as set forth above, because the 'Brief Summary' section should **not** merely be a recitation of example claims. The 'Detailed Description' section is **not** merely for a recitation of sample / example claims either – the first few pages of this section merely recited sample claims without appropriate explanation of the elements or the reasons behind their presence. Appropriate revision is required, and examiner **strongly** suggests to applicant that redundant information and the numerous recitations of the same example claims be removed, as it does not help or facilitate in understanding the invention and merely makes the specification long and difficult to read.

5. The disclosure is objected to because of the following informalities:

-Page 11, line 15, the term 'peculiar' is used, where this is not the correct, idiomatic English usage and it is not correct here; examiner suggests replacing the word with 'particular', which would be appropriate. (Standard English definition for 'peculiar' is odd, strange, or different, which is obviously not the intended meaning).

Appropriate correction is required.

6. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

7. Applicant is advised that should claim 3 be found allowable, claims 4 and 5 will be objected to under 37 CFR 1.75 as being exact and substantial duplicates thereof. When multiple claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the others as being substantial duplicates of the allowed claim. See MPEP § 706.03(k). Examiner is aware that such claims are dependent on different dependent claims; however, examiner wanted to put applicant on notice of this fact, because any subsequent revisions or amendments may change the dependency structure such that this will be an important point. (The same points are made with respect to claims 7-9, 13-15, and 16-18).

Oath/Declaration

8. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:
It does not identify the citizenship of each inventor, that is, the inventor's country of citizenship is given as 'Chinese', which is a description of a generic nationality, not a country. Further, it is unclear whether the country of citizenship is the People's Republic of China (PRC) or the Republic of China (ROC) a.k.a. Taiwan. This must be corrected.

Claim Objections

9. Claims 3 and 12 are objected to because of the following informalities: the term "blank" is used repeatedly, where this is not correct, idiomatic English and is not art-accepted terminology. Correct terminology would be "side, line, portion, or section", and

examiner recommends to applicant to carefully check which is the intended meaning.

Appropriate correction is required.

10. Claims 7-9 and 16-18 are objected to because of the following informalities:

Roman numerals are referred to as having a "lower-case character" where this does not make sense. It is believed that applicant is referring to English language characters.

Appropriate correction is required.

11. Re claims 2-3, 11-12, and 20, examiner respectfully suggests to applicant that the term "bounding box" be carefully considered to replace "circumscribed quadrilateral" – the referenced patents in the rejections, particularly Simske and Goodman, clearly teach their use, and that is the terminology commonly used amongst those of ordinary skill in the art in American English.

Claim Rejections - 35 USC § 112

12. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

13. Claims 1, 10, and 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Specifically, the term "font character space" is a relative term that renders the claim(s) indefinite, because the term could mean several things, and it is unclear the desired meaning – whether applicant is referring to the sum total of all characters in a font or some other range.

Claims 2-9, 11-18, and 20 are rejected as not correcting the deficiencies of their parent claim(s).

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claims 1, 10, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kazuyuki (JP 2002-062862 as cited by applicant – full translation from JPO site is attached) in view of Goodman et al (US PGPub 2001/0033694 A1)('Goodman'). (A computer program is a trivially obvious variant, and Kazuyuki discloses a computer program implementation in [0014-0016] and [0030], so the same rejections are valid on binding on all of the above claims, and method and apparatus are the same thing, and the same rejection holds.)

As to claims 1, 10, and 19,

An apparatus for handwritten character font generation comprising:

-A character image extraction section configured to extract character image data of handwritten characters filled into character entry boxes from image data scanned from a character entry sheet in which the handwritten characters are filled into the character entry boxes corresponding to respective character codes; (Kazuyuki pg. 4 – e.g. paragraph [0010], and pg. 5, paragraphs [0011] and [0012], which clearly describe a character entry sheet in which handwritten characters are entered, and that such

images are scanned using image scanner 5 in Drawing 1, and that such characters are read out and correlated to their real-world images.)(Goodman teaches OCR techniques from handwritten data in forms, e.g. census data, in pg. 1, [0003-0005], [0011-0012])

-A character positional information storage section configured to store character positional information of font character space defined for each of characters; (Goodman [0085] teaches normalization of detected text, which clearly includes "size normalization" and word segmentation, which means that OCR is performed on data sets having known characteristics, e.g. forms. This means that positional information must *prima facie* be known. Further, the detected information must be stored for repeated OCR passes to hold the word skeleton information cited in [0084]. Specifics are provided in [0086-0095], particularly explained with respect to Figs. 9 and 10. Particularly, in [0089] Goodman establishes that features in cursive handwriting create two-dimensional vectors with position information, and that the position can be mapped. Obviously, this teaches storage of positional information for specific characters within each word skeleton, and the claims are drawn to positional information as well. Further, Goodman [0059-0068] teaches the use of preprocessing to deal with handwritten characters that exceed the size of a normal text box.)(Kazuyuki backs this position implicitly in [0023] where it is disclosed that characters have different size ratios and so would need to be size renormalized in any case.)

-A character positional information calculation section configured to calculate the amount of movement for moving the extracted character image data to a character position of the font character space defined in the character positional information;

(Goodman [0085] teaches normalization of detected text, which clearly includes “size normalization” and word segmentation, which means that OCR is performed on data sets having known characteristics, e.g. forms. This means that positional information must *prima facie* be known in order to allow size normalization, e.g. resizing, to be effective, and as set forth in the previous paragraph. Further, since cursive handwriting is being used, preprocessing is necessary before feeding the data to the OCR engine, which is why the system as recited performs this task. Further, Goodman [0059-0068] teaches the use of preprocessing to deal with handwritten characters that exceed the size of a normal text box.)

-A character position alignment section configured to move the character image data to the character position of the font character space defined in the character positional information based on the calculated amount of movement; and (Goodman again teaches size normalization as set forth above, which would obviously move and resize data in forms that might be out of a bounding box, e.g. Goodman [0059-0068] teaches the use of preprocessing to deal with handwritten characters that exceed the size of a normal text box, and thus move characters [as set forth in [0085-0087] and above].)

-A character font generation section configured to generate font characters of the handwritten character font based on the moved character image data. (Kazuyuki pgs. 4 and 5, Detailed Description, [0010-0013])

Reference Kazuyuki clearly teaches the first and last elements of the claim – applicant admits this is the Background section of his specification, and states that applicant’s invention is directed to this resizing of characters, but does not explicitly

Art Unit: 2672

teach the middle three elements, e.g. the automatic resizing and movement of characters that are out of position. Reference Goodman is directed to methods of processing written records for optical character recognition (OCR) that have cursive handwriting. Goodman is concerned with, among other things, renormalizing for size [0085-0086] and performing preprocessing to deal with handwriting that falls outside of the bounding box for various reasons [0059-0067]. See also the abstract, where it is clearly disclosed that characters have various sizes and positions, and so OCR software used in this invention must *prima facie* be capable of performing size and positional rescaling and appropriate movement as set forth above.

As set forth above, both references are analogous art and directed to the same problem solving area. The system of Kazuyuki clearly deals with processing input, handwritten characters using OCR techniques based on scanned images, as does the Goodman reference, which is clearly directed to scanned, handwritten images and documents [0003-0008], and the techniques taught by Goodman would clearly help the system of Kazuyuki compensate for characters drawn partially outside of the desired drawing area.

As such, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the inventions of Kazuyuki and Goodman as set forth above, since they are directed to the same problem solving area and clearly the techniques of Goodman would allow the Kazuyuki to rescale characters that were drawn at least partially outside of the desired drawing areas for such characters and use

that information – Kazuyuki may provide this functionality but is silent to it, and motivation as set forth above in addition.

16. Claims 2-9, 11-18, and 20 are rejected under 35 U.S.C. 103(a) as unpatentable over Kazuyuki in view of Goodman as set forth above in the rejection to claim 1, and further in view of Simske (US PGPub 2004/0017941 A1)('Simske').

17. As to claims 2, 11, and 20,

The apparatus of claim 1, further comprising

-A character circumscribed quadrilateral calculation section configured to calculate a circumscribed quadrilateral of a character position of the character image data from the extracted character image data, wherein: (Goodman [0073] states that each word gets a bounding box formed around it, and in [0082] a bounding box is used to eliminate stray marks or similar.)(Simske clearly uses bounding box logic to analyze regions of document (see Fig. 4 for example). Further, Simske clearly utilizes bounding box logic to perform the recited calculation, see pg. 2, [0025-0029].)(Kazuyuki clearly utilizes some kind of method to check for validity of entered characters in the scanned area in [0035] through [0039], where it is clearly established that the size of the box area ("assignment area" in Kazuyuki) is varied, but it is clear that a bounding box is utilized)

-The character positional information section calculates the amount of movement for moving the calculated circumscribed quadrilateral position of the font character space defined in the character positional information; and (Goodman clearly teaches preprocessing of images prior to OCR and the use of bounding boxes as set forth

above, and Simske clearly justifies the use of a bounding box and its relationship to OCR to pick out desired areas)

-The character position alignment section moves the character image data to the character position of the font character space defined in the character positional information by moving the character portion of the character image data based on the calculated amount of movement. (Goodman again teaches size normalization as set forth above, which would obviously move and resize data in forms that might be out of a bounding box, e.g. Goodman [0059-0068] teaches the use of preprocessing to deal with handwritten characters that exceed the size of a normal text box, and thus move characters [as set forth in [0085-0087] and above]. This position is back by Simske and Goodman as stated above clearly).

Reference Kazuyuki clearly teaches the use of some kind of “assignment area” that is clearly a bounding box, and Goodman clearly teaches the use of a bounding box area and size renormalization. Simske teaches the use of bounding boxes to isolate textual regions for OCR purposes, such as Goodman does so that such regions can be processed for OCR, as in Goodman, and Kazuyuki clearly establishes that the processing of the characters requires the components above. It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the OCR and handwriting font generation systems of Kazuyuki and Goodman with the OCR and bounding box system of Simske as set forth above, and because the use of bounding boxes is well established in these references – e.g. Simske uses bounding boxes for isolating textual regions for OCR as in Goodman, and Goodman

teaches use of OCR and pre-processing to sharpen the extraction of character data and size normalization to compensate for characters drawn partially outside the desired area of Kazuyuki or oversized ones.

18. As to claims 3 and 12,

The apparatus of claim 2, wherein

-The character positional information includes information about a ratio of a top blank to a bottom blank and a ratio of a left blank to a right blank of the circumscribed quadrilateral in the font character space. (Kazuyuki teaches this limitation in [0023] where it is disclosed that characters have different size ratios and so would need to be size renormalized in any case.)(Goodman teaches the bounding box explicitly as set forth in the rejections to claims 1 and 2 above).

As such, It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the ratios of Kazuyuki with the bounding boxes of Goodman as set forth above because size renormalization is known to take place in Goodman and is also known to take place in Kazuyuki as characters must be resized. Clearly, this must be interpreted such that size renormalization also takes care of positional and orientation issues as set forth in Goodman and referenced in the rejection to claim 1, and the incorporation of Simske has motivation / combination taken from the above rejection to claim 2.

19. As to claims 4-6 and 13-15,

The apparatus of claim 1, wherein

-The character positional information includes information which defines fiducial characters corresponding to each of specific characters and information which defines a positional relation between each of the specific characters and each of the position fiducial characters respectively.

Clearly, reference Kazuyuki teaches this, for example see the Figure on the front page of the abstract or Drawing 2 (or 3), which clearly shows the specified fiducials or characters in row (a), and the handwritten version in row (b) below. The position or location of the fiducials is specified as set forth in the Drawing. Specifically, the layout of the sheet on which the characters are displayed is known, and clearly a specified layout clearly establishes positional relationships between all relevant characters. Since only the primary reference is utilized, no separate motivation or combination is required and that from the rejection to the parent claim is herein incorporated by reference.

20. As to claims 7-9 and 16-18,

The apparatus of claim 4, wherein the specific characters includes voiced sound characters among Hiragana characters and Katakana characters, p-sound characters among Hiragana characters and Katakana characters, and Roman numerals of a lower-case character.

Reference Kazuyuki teaches all these limitations, specifically the use of Katakana characters in [0022], the use of Hiragana characters in [0026], Roman numerals and letters of both cases in Drawing 4, and it is presumed that drawings 5 and 7 reflect Japanese characters in both cases as well as p-sound characters and voiced sound characters, which are known to those of ordinary skill in the art to be among

Art Unit: 2672

generally written Katakana and Hiragana characters. Kazuyuki contains these, and applicant's invention is stated to be basically an improvement of the Kazuyuki invention. In any case, it would have been obvious to one of ordinary skill in the art at the time the invention was made to so modify the invention of Kazuyuki (if necessary) to include such characters, as they represent a large portion of the Japanese character set that would obviously be desirable to have for writing. Motivation and combination from the rejection to claim 1 is herein incorporated via reference for any supporting elements. (For secondary issues, e.g. incorporation from dependent claims farther down the claim tree where the Simske reference is used, motivation and combination are taken from the rejection to claim 2 above.)

Conclusion

21. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

US 5412771 A (Fenwick)

US 5649026 A (Heins)

US 6023534 A (Handley)

US 6298154 B1 (Cok)

US 6621941 B1 (Syeda-Mahmood et al)

US 6665422 B1 (Seidel et al)

US 20020102022 A1 (Mat et al)

US 20030016869 A1 (Laumeyer et al)

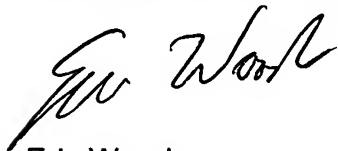
US 20040140977 A1 (Hakamada, Junichi).

22. Further, applicant is strongly urged to consider 2004/0140977 A1, as it discloses subject matter that is very similar to that of applicant, if not identical, and it was filed within a month of applicant's filing date.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric V Woods whose telephone number is 703-305-0263. The examiner can normally be reached on M-F 7:30-5:00 alternate Fridays off.

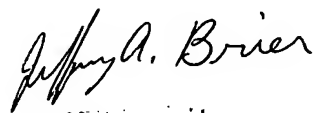
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Razavi can be reached on 703-305-4713. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Eric Woods

7 February 2005



JEFFERY A. BRIER
PRIMARY EXAMINER